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callus to the joint of the awn, clothed with prominent silky white hairs over 1 mm. long; awn slightly twisted and bent, about 2 cm. long.—*Stipa caduca* Scribner. Collected by Professor F. L. Scribner at Sixteen-mile creek, Belt Mts., Montana, July 11, 1883.

O. Pringlei. Culms erect, rather slender, 6 to 12 dm. high: radical leaves numerous, half or two-thirds as long as the culm, scabrous, flat or involute, the largest 2 mm. wide, those of the culm 3, the upper one filiform, rigid, 3 to 6 cm. long; sheaths longer than the internodes; ligule 2 to 3 mm. long: panicle much exserted, open, thin, flexuose, 15 to 20 cm. long, branches slender, in twos to fours, some of them half as long as the panicle, bearing a few flowers above the middle: empty glumes equal, green on the back, brownish towards the thin margins and apex, elliptical-lanceolate, 5-nerved, 8 to 10 mm. long: floret lance-obovate, flattened, pubescent, becoming dark brown, 6 mm. long, callus blunt; awn irregularly bent, slightly twisted for the lower half, about 2 cm. long: palea firm, nearly as long as its glume: stamens 3.—No. 1410, C. G. Pringle, collected in Chihuahua, Mexico, 1887, and distributed as *Stipa Pringlei* Scribner.

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Preliminary notes on Perityle.

J. N. ROSE.

(WITH PLATE XIII.)

Bentham and Hooker, in 1876, assigned but two species to this genus in their "Genera Plantarum." When this genus was revised in the "Synoptical Flora" (1884) only ten species were recorded. In the last few years, especially through the explorations in Lower California, quite a mass of new material has been brought to light and the number of species has been doubled, besides adding a number of well marked varieties. I have not attempted at this time to make a complete revision of the genus, but to bring together the data which have come to light since the publication of the "Synoptical Flora."

I am indebted to Dr. Sereno Watson and Dr. Geo. Vasey for looking over this manuscript, and for the use of the large



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collections under their control, viz., the Gray and National Herbaria; also to Dr. N. L. Britton for the Columbia College collection, especially the Torrey types; to Mr. E. L. Greene, T. S. Brandegee and W. M. Canby for specimens and the use of their herbaria.

Several of our Perityles have, until the present year, been almost unknown and considerably confused, but this last year, through the energetic labors of Dr. Edward Palmer and T. S. Brandegee in Lower California, two of these rarities have been rediscovered and will require some shifting in the names as they now prevail.

The species of Perityle are quite variable and their limitation often uncertain. I have considered in the paper largely the *P. Fitchii* and *P. Californica* groups of Gray, and especially these two species.

I. *P. Fitchii*, and its near relative *P. Brandegei*, are readily distinguished from other Perityles by their 4-sided akenes, no pappus of either crown or awns; sometimes, however, a few akenes are found in the heads with but 3 and some 2 angles; rays white.

II. *P. Californica*, *P. deltoidea* and *P. microglossa* are readily distinguished from other species by the thick white callous margin of the akene, and yellow rays.

III. *P. Emoryi* and *P. Greenei* are difficult to separate from each other, but are easily separated from the above species. The akenes are much flattened, 2-angled, the margin often densely hirsute and with a more or less prominent crown; rays white.

1. *P. incana* Gray, a well marked species only known from Gaudalupe Island, collected by Palmer and Greene.

2. *P. dissecta* Gray, and

3. *P. coronopifolia* Gray, are rare species not recently collected.

4. *P. Fitchii* Torr. One to two feet high, branching above, viscid pubescent: leaves an inch or less long, broadly ovate, doubly serrate: heads solitary on peduncles about an inch long, 5 to 6 lines high: disk corollas 2 lines long, slender, gradually passing into the proper tube: rays white, sometimes drying pinkish: style branches with slender acuminate appendages: akenes somewhat flattened, 4-angled, 1 to $1\frac{1}{2}$ lines long, narrowly linear, faces smooth, angles slightly hirsute (in dry akenes) with straight appressed hairs (fig. 1).

Much uncertainty has existed with reference to this species. The type specimens collected by Rev. A. Fitch were very poor and imma-

ture. It is very uncertain where they were collected. The original label says "California," but Dr. Gray considered this a mistake and thought that it was probably from some of the islands. In the Synoptical Flora Dr. Gray doubtfully referred here as a variety, Palmer's Guadalupe Island plant (no. 44, '76). Mr. Greene has collected in the last few years from several of the coast islands and the Californian peninsula, and referred here a species more closely related to *P. Emoryi*. To Mr. T. S. Brandegee belongs the credit of collecting and identifying Torrey's old species and referring to it *Laphamia peninsularis* Greene. While studying Palmer's San Quentin plants, I had independently reached the same conclusion with reference to *P. Fitchii*, but did not recognize my plant as the *Laphamia peninsularis*. Since then, through the kindness of Dr. Britton, I have studied Torrey's specimen (the only type specimen in existence), and have confirmed Mr. Brandegee's conclusion that it is the same as *L. peninsularis*. The type is a mere scrap with half mature akenes, but it shows "the two approximate nerves at each margin," the style tips, and no signs of pappus, and has the close viscid pubescence. The following are the stations and collectors of this species: Rev. A. Fitch "California," in herb. Torrey; "Scammon's Lagoon," Lower California, unknown collector in herb. Cal. Acad. Sciences; Dr. Edward Palmer, San Quentin, Lower California (no. 706), Feb. 1, 1889; T. S. Brandegee, Purisima, Lower California, Feb. 12, 1889; T. S. Brandegee, Comundu, Lower California, Feb. 1889. From the above list of stations it may be seen that this species, which for 35 years has been almost unknown, is really a common species of the peninsula and is found on both ocean and gulf side, and has not yet been found on any of the islands. The bibliography is as follows: *Perityle Fitchii* Torr., Pac. R. R., Vol. IV, 100; Gray, Syn. Flora, Vol. I, pt. II, 321, excl. var.; Brandegee, Proc. Cal. Acad., 2d ser., Vol. II, p. 177, excl. var.; *Laphamia peninsularis* Greene, Bull. Cal. Acad., Vol. I, pt. II, p. 319.

5. *P. Brandegeana*, n. sp. A very similar species: stems 3 to 12 inches high, the smaller plants simple, the larger ones branching at base, glabrous below, somewhat glandular above: rays white: disk corolla $1\frac{1}{2}$ lines long, abruptly contracted into the proper tube: style-tips obtuse: akenes linear, $1\frac{1}{2}$ to 2 lines long, 4-angled, faces sparsely hispid, in dry akenes hairs coiled (fig. 2).

Lagoon Head, March 6 to 15, 1889, Dr. Edward Palmer. Abundant on sand beaches and hills contiguous to the ocean. Dr. Palmer also says it extends back 40 miles inland.

6. *P. Rothrockii*, n. sp. A somewhat similar plant, 4 to 6 inches high, branching, somewhat glandular: heads mostly on peduncles, sometimes 2 inches long: akenes 3-angled, the central ones by compression 2-angled, the angles hirsute, with the paleaceous crown lacerate.

Specimens in National Herbarium are labelled from Nevada, 1872, but Rothrock's Report says Arizona, and Dr. Rothrock writes me that he thinks it is most likely from Nevada. Probably *P. Emoryi* Roth. in Wheeler's Report, p. 166, excl. descr., and Watson's Catalogue of the same.

7. *P. Californica* Benth. Slender, erect, more or less branching, almost glabrous below, pubescent and a little glandular above: leaves opposite, the upper ones alternate, broadly ovate or suborbicular, coarsely dentate or incisely lobed, truncate at base: rays yellow: corolla ($1\frac{1}{4}$ lines long) abruptly contracted into a short and very slender tube: style branches short and obtuse: akenes less than a line long, with a thick callous hirsute margin: pappus a paleaceous crown, constricted at base, its summit lacerate, and a single awn longer than the akene, barbellate throughout (fig. 3).

Hinds (1837) and Brandegee (1889), Bay of Magdalena, Lower California. The history of this species is curious and interesting. It was collected first in 1837 at Magdalena Bay and described (with plate) in the Bot. of the Sulphur, by Mr. Benth. in 1844. Nothing more is said of it until 1862, when Dr. Gray in Proc. Amer. Acad. refers Xantus's specimen from Cape St. Lucas to it, and in the Botany of California he still refers to those two specimens as representing all of *P. Californica*. In the Synoptical Flora, however, he refers Xantus's specimen, his only representative of *P. Californica*, to *P. microglossa*, and takes up *P. Emoryi* for that species (*P. Californica*). And now, this past season, Mr. Brandegee has collected at the original station the true form of Benth. species, which will require the referring back to *P. Emoryi* the *P. Californica* of all modern authors. There is still one point which is a little confusing: Mr. Brandegee's specimens are slender and not much branched, while Benth. figure resembles some forms of *P. Emoryi*. But as Mr. Brandegee's specimens show the exact akenes with their thick callous margin, peculiar crown, and awns, and the yellow rays of Benth. description and figure, it seems to be the true *P. Californica*. Should the habit (a most valuable thing in this genus) dominate, it would require a new name, otherwise the old and familiar name is taken up.

Benth., Botany of the Sulphur, p. 23: Gray, Botany of California, excl. Xantus's plant; Syn. Flora, Vol. I, pt. 2, 321, in small part.

8. *P. deltoidea* Watson. Very near to *P. Californica* in habit and in the akenes, but the latter have a somewhat different crown and there are slight differences in the corolla and style tips. Collected in Lower California, Los Angeles Bay by Palmer, and about Comundu by Brandegee. Wat-

son, Proc. Amer. Acad. 24. 57: Brandegee, in part Proc. Cal. Acad., 2 ser. 2. 177.

9. *P. cuneata* Brandegee. Probably finds its closest relationship with the two above species. It is peculiar in its cuneate or spatulate akenes. Lower California, Brandegee. Published in *Zoe*, 1. 54.

10. *P. microglossa* Benth. The second species of the genus. This and the three preceding are the only ones which possess the thick callous margin of the akenes. Gray (Syn. Flora) describes the akenes as follows: "Akenes obovate or obovate-oblong, with broad summit, villous-ciliate margins, and a pair of delicate awns, which barely equal the breadth of the akene, and are twice or thrice the length of the crown of squamellæ. The awn under high power is a little scabrous; akene $\frac{3}{4}$ line long (fig. 5).

It differs from *P. Californica* in the length and the character of the awns, and the shorter crown. The bibliography is fully given by Gray in Syn. Flora. Only two stations are known for the typical form, within our borders; collectors, Lay, Collie, and Coulter. Parish's plant, referred here by Gray, goes to *P. Emoryi*. In Lower California¹, Realego, the original station (Hinds); Cape St. Lucas (Xantus); Mexico, near San Luis Potosi (Palmer). The var. *effusa* Gray has only been collected by Pringle in Arizona.

11. *P. plumigera* Gray. Only known from Thomas Coulter's collection. Has its nearest relationship with the following species, of which Dr. Gray thought it might be a form.

12. *P. Emoryi* Torr. Mostly tall, a span to 2 feet high, erect, more or less branching, glabrous, or often hirsute and glandular above: leaves cordate in outline, 5 to 9-cleft, sharply serrate: rays white: akenes $1\frac{1}{2}$ lines long, straight, cuneate-oblong, margin hispid-ciliate, the small crown with a ciliate border, not constricted at base: the pappus a single slender awn, of the length of the akene, barbellate at apex: but in var. *nuda* Gray without awn, in other respects like the type, with which it is generally found, and is the common form. The faces of akenes are generally glabrous, but sometimes puberulent (fig. 6).

Emory's Report (1848), 142; Gray, Botany of California, 1. 396; Synoptical Flora, 1. 321, in part. *P. Californica* Watson, Proc. Am. Acad., 24 57.

The synonymy of var. *nuda* Gray is as follows: *P. nuda* Torr. Pacif. R. Rep. IV, 1000: Hemsley, Biologia Cent. Amer., 4. 142. *P. Califor-*

¹Palmer has recently (Feb. 5) collected it in great abundance at La Paz.

nica Benth., var. *nuda* Gray, Syn. Flora, 321. *P. Fitchii*, var. Brandegee, Proc. Cal. Acad., 2 ser. 2. 177. *P. microglossa* Gray, Syn. Fl., 322, as to Parish's plant.

In Palmer's 562 from Los Angeles Bay, the akenes are broader and margins densely villous, and it has somewhat spreading branches.

To this species I doubtfully refer a plant collected by Orcutt (1886), near Rosario, Lower California, of a very branching habit akenes a little curved, with very minute or no crown; and while the akenes are mostly 2-angled, they are often 3 or 4-angled in the same head.

P. Fitchii, var. of Mr. Brandegee, seems to be a form of this species. It has the same slender corolla ($1\frac{1}{2}$ lines long) and similar style-tips and crown, but no awns. The akenes are, however, a little curved and the faces a little hirsute.

Mostly in the desert regions of S. W. Arizona and S. California and extending as far south as Los Angeles Bay, and Magdalena Bay, Lower California. We have examined the following specimens: California (Bigelow, Parish); Colorado Desert (Schott, Orcutt); San Clemente Island (Nevin & Lyon); Yuma (Lieut. De Barry, Maj. G. H. Thomas); Arizona, Grand Cañon (Gray); Ft. Mohave (Cooper, Palmer, J. G. Lemon and wife); Rio Colorado (Newberry, Parry); Lower California, San Telmo (Orcutt); All Saints Bay (Miss Fish); Magdalena Island (Brandegee, 1889); San Quentin (Palmer, 1889); Los Angeles Bay (Palmer, 1887).

Var. *Orcuttii*, n. var. Mr. C. R. Orcutt has collected in Cañon Cambellos, July, 1884, a slender form with small leaves, akenes with small crown or none, and often with faces quite pubescent. Also at Santa Maria, T. S. Brandegee, May 14, 1889.

13. *P. Greenei*, n. sp. Varying from 1 inch to a foot high: small plants erect and simple, large ones much branched and spreading, more or less resinous-viscid: leaves smaller, cordate or sometimes cuneate at base, serrate: corolla swollen, abruptly contracted into the proper tube, the lobes broadly ovate: styles acute: akenes $1\frac{1}{4}$ lines long, obovate, oblong, nearly straight, flattened, 2-edged, with margin hispid-hirsute: crown of united squamellæ lacerate: awns wanting or single (fig. 7).

A species very closely related to *P. Emoryi*. Mr. Greene says they can be easily distinguished in the field, this being strongly aromatic, while the other is scentless. Collected on Santa Cruz Island by Mr. E. L. Greene, July and August: Cedros Island, Dr. Veatch, Dr. Sheets, December, 1876; Greene, April, 1885; Dr. A. Kellogg (in herb. Gray); Palmer, 1889 (707, in part): San Benito Island, Lieut. Pond, 1889; Dr. Palmer, 1889 (no. 914): San Bartolome Bay, Lieut. Pond, March, 1889. I have seen most of the above specimens, with the exception of the last men-

tioned. This species is limited to the islands. The bibliography is as follows: *P. Fitchii* Greene, Cal. Acad. of Science, 2. 403, and Pittonia, 1. 205, 265, 291. *P. Californica* Vasey, Proc. Nat. Museum, Vol. 11, 368.

14. *P. Grayi*, n. sp. A species very close to *P. Greenei* in habit but more glabrous: stems mostly low and much branched: akenes barely over a line long, oblong, somewhat falcately oblique, with a short pappus of numerous squamellæ united into a small crown, with an erose denticulate border, margin minutely hirsute, faces more or less puberulent; awns mostly wanting, sometimes one (fig. 8).

Palmer, Guadalupe Island, 1875 (no. 44), 1889 (891), and Cedros Island, 1889 (no. 701, mostly). *P. Emoryi* Watson, Proc. Am. Acad., 11. 116. *P. Fitchii*, var. *Palmeri* Gray, Syn. Flora, 321. To this we refer Palmer's plant from Cormandos Islands (1888), which has the same akenes and crown, but of more slender habit, and minute leaves.

15. *P. leptoglossa* Gray. Supposed by Gray to have been only collected by Dr. Coulter. His label says it was "California," but Dr. Gray thought it was more probably Arizona, and it seems more likely not found within our limits. I find in the National Herbarium this plant from Guaymas, Mexico, collected by Dr. Palmer in 1869. The species is peculiar in the slender proper tube of the corolla, and the long and narrow cylindrical throat. The akenes a line long, linear oblong, with a conspicuous crown of squamellæ; awn single, longer than the akene, slightly scabrous.

16. *P. microcephala* Gray is a Mexican species collected by Pringle and Palmer. Proc. Amer. Acad. 21. 391,

17. *P. Socorroensis*, n. sp. Apparently an annual, slender, ascending, with a close appressed somewhat glandular pubescence: leaves very variable, small, 6 to 10 lines long, equalling the petioles, ovate to broadly triangular, the base cordate to even reniform or above with more or less cuneate base: heads mostly on peduncles an inch or two long: rays white, small, 3-toothed: disk flowers slender, $1\frac{1}{2}$ lines long, its proper tube forming half its length: style branches broad with acute tips: akenes spatulate-oblong ($1\frac{1}{2}$ lines long), with ciliate margins, no crown (sometimes mere vestiges of squamellæ), and two unequal awns from opposite angles, tipped with the remains of the style (fig. 9).

A very peculiar Perityle with much the appearance of *P. leptoglossa*, resembling *P. Fitchii* in having akenes tipped with the base of the style and no crown, while the akene more resembles *P. Emoryi*. Collected by

Mr. Townsend, of the Albatross, at Socorro Island, about 200 miles off Cape St. Lucas, Lower California.

18. *P. Palmeri* Watson. Guaymas, Mexico (Palmer); Lower California at Comondou and Purisima (Brandeggee). Watson, Proc. Amer. Acad. 24. 37. Brandeggee, Proc. Cal. Acad., 2 ser., 2.177.

19. *P. Parryi* Gray. Collected by Parry, Havard, and recently by Pringle.

20. *P. Vaseyi* Coulter, ined. A new species from Texas (Nealley). Nearest *P. Parryi*, but of very different habit and foliage.

21. *P. aglossa* Gray. Only known from the canons of the Rio Grande (Parry).

22. *P. Jaliscana* Gray. Collected by Palmer in 1886, in the State of Jalisco, Mexico. Proc. Am. Acad. 22. 431.

EXPLANATION OF PLATE XIII.—All figures $\times 20$. 1. *P. Fitchii* (Palmer's San Quentin coll. of 1889). 2. *P. Brandegeana* (Palmer's Lagoon Head coll. of 1889). 3. *P. Californica* (Brandeggee's Magdalena Bay coll. of 1889). 4. *P. cuneata* (Brandeggee's Lower California coll. of 1890). 5. *P. microglossa* (Palmer's 1093 from Mexico). 6. *P. Emoryi*, var. (Orcutt's Colorado Desert coll. of 1889). 7. *P. Greenei* (Palmer's San Benito Isl. coll. of 1889). 8. *P. Grayi* (Palmer's Guadalupe Isl. coll. of 1889). 9. *P. Socorrosensis* (Townsend's Socorro Isl. coll. of 1889).

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BRIEFER ARTICLES.

An international congress of botanists.—The idea occurred to the writer some time ago that the action of a number of societies, representing widely different interests, preparatory to taking advantage of the influx of visitors at the World's Fair three years hence, in order to secure representative gatherings of international character, might be imitated by the botanists to their great advantage and the furtherance of science. After some deliberation the matter was communicated by letter to a number of botanists, nearly a score in fact, with a request for their opinion. The answers have been almost uniformly favorable to the project, and in the majority of cases even enthusiastically so.

With one possible exception I have received no intimation of doubt about the great value and desirability of such a meeting. The buts and ifs are chiefly directed to the possibility of securing the attendance of foreign botanists whose presence is necessary to give sufficient weight to the deliberations of the congress to make the conclusions reached of universal acceptance. If this difficulty can be successfully met the minor ques-